

RIM OEM Radio Modem for GSM/ GPRS Wireless Networks

RIM 1902G[™] and RIM 1802G[™]

Getting Started Guide

Version 1.2

RIM OEM Radio Modem for GSM/GPRS Wireless Networks Version 1.2 Getting Started Guide Last revised: 08 August 2003

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About this guide

This guide provides information on the following topics:

- setting up the Interface and Test Board
- connecting the radio modem to your computer

This guide is intended to help you start testing the RIM 1902G[™] or RIM 1802G[™] radio modems.

Related resources

Refer to the following documentation, which is included in the Integrator's Kit:

• Integrator Guide

The *Integrator Guide* explains how to integrate the RIM 1802G or RIM 1902G into a variety of devices. This guide explains integration steps, provides an overview of the test board, mounting requirements, power (battery) requirements, and antenna selection and placement.

• AT Command Reference Guide

The *AT Command Reference Guide* lists the AT commands that apply to the RIM 1902G and RIM 1802G.

Support

To discuss the technical integration of the radio modem, contact RIM at oemsupport@rim.net.

About this guide

Chapter 1 Setting up the Interface and Test Board

This guide provides information on the following topics:

- Setup overview
- Connecting the SIM card
- Connecting the radio modem
- Connecting to the computer
- Inserting the SIM card into the SIM card holder
- Connecting the antenna to the radio modem
- Connecting to an AC outlet
- Turning on the transceiver
- Connecting the headset

Chapter 1: Setting up the Interface and Test Board

Setup overview

To set up the Interface and Test Board, perform these tasks:

- 1. Insert the SIM card into the SIM card holder on the Interface and Test Board (off-board SIM configuration) or directly onto the radio modem (on-board SIM configuration).
- 2. Connect the radio modem to the Interface and Test Board using the 22-pin connector cable.
- 3. Connect the Interface and Test Board to the computer using a standard RS-232 cable.
- 4. Connect the antenna to the radio modem.
- 5. Connect the Interface and Test Board to an AC outlet.
- 6. Turn the transceiver on/off switch to the "on" position
- 7. Connect the headset.

The following diagram illustrates the Interface and Test Board and major components.



Interface and Test Board (on-board SIM configuration) - top view

Connecting the SIM card



Note: This task only applies to the off-board SIM configuration.

The 6-pin flat SIM interface cable carries the data and power between the Interface and Test Board SIM slot and the radio modem.

- 1. Remove the radio modem from the Interface and Test Board: unfasten the nuts and lift the radio modem up and away from the Interface and Test Board.
- 2. On the underside of the modem, on the connector, push the two black tabs up from the connector to widen the opening.



Underside of radio modem showing the 6-pin connector

3. With the blue side facing the Interface and Test Board, insert the end of the cable 6-pin cable into the connector. Verify that the side with the bare pins is in direct contact with the pin side of the connector.



Note: Do not force the cable into the connector.

- 4. Push the black tabs down toward the connector to secure the cable.
- 5. Repeat steps 2 through 4 to connect the 6-pin connector to the Interface and Test Board.
- 6. Re-attach the radio modem to the Interface and Test Board.

Connecting the radio modem



Note: This step is only necessary if the radio modem is not already connected to the Interface and Test Board.

The 22-pin flat interface cable supplies clean, regulated power to the radio and carries most of the data and all of the voice between the Interface and Test Board and the radio modem. This cable also carries control and status signals, such as ONI.

1. At the top of the radio modem, push the two black tabs up and away from the connector.



Connecting the 22-pin cable to the radio modem

2. With the blue side facing the Interface and Test Board, insert the end of the 22-pin cable into the connector. Verify that the side with the bare pins is in direct contact with the pin side of the connector.



Note: Do not force the cable into the connector.

- 3. At the top of the radio modem, push the black tabs down toward the connector to secure the cable.
- 4. Repeat steps 1 through 3 for the 22-pin connector on the Interface and Test Board.

Connecting to the computer

Use the straight-through DB-9 serial cable to connect the Interface and Test Board to the computer.

Connect the male end of the cable to the Interface and Test Board. Connect the female end of the cable to an available COM port on the computer.

Inserting the SIM card into the SIM card holder



Note: You must have a SIM card that is authorized for use by the appropriate GPRS network provider. The authorization must also allow access to the Access Point Name (APN) that will be targeted.



Warning: To prevent damage to your SIM card, do not scratch or bend the card or expose it to static electricity or wet conditions.

1. If you are using the on-board SIM configuration, turn the test board over to reveal the cut-out that provides access to the SIM card holder on the underside of the radio modem.



Interface and Test Board (on-board SIM configuration) - bottom view

Chapter 1: Setting up the Interface and Test Board

- 2. Slide the SIM card holder in the direction of the arrow to unlock it, and then lift the cover open.
- 3. Slide the SIM card into the cover with the conductive side facing the leads on the board. The notched end of the SIM card should align with the notch in the SIM card holder.
- 4. Close the cover. Slide the cover in the reverse direction of the arrow to lock it into place.

Connecting the antenna to the radio modem

The Integrator Kit includes a high-performance, 3 dBd-gain magmount antenna, which is terminated by a screw-on SMA plug. The radio modem includes a snap-on MMCX jack.

- 1. Insert the antenna into the base. Turn the antenna until the two components are securely fastened.
- 2. Insert the SMA cable connector into the MMCX connector and turn the SMA connector until the two components are securely fastened.



SMA cable connector and MMCX connector

- 3. Insert the MMCX connector into the radio modem's MMCX jack.
- 4. Position the antenna for optimal coverage. The magmount antenna provides optimum RF performance when it is placed on a broad metal surface, such as the roof of a car. If you are using the antenna inside a building, place the antenna near a window.

Connecting to an AC outlet

Plug the 5VDC, 2.4A, center-pin-positive power adapter into a wall outlet. Connect the other end to the Interface and Test Board's power jack.

Turning on the transceiver

Turn the switch to the TURNON position to allow the transceiver of the radio modem to power up. When the transceiver is on, the LED marked ONI is lit

Connecting the headset

Insert the microphone plug into the microphone jack. Insert the speaker plug into the speaker jack.

To enable the radio modem to communicate with your computer, you must add the radio modem to your computer, and add a dial-up network connection for the modem.

This section provides information on the following topics:

- Required information
- Connecting with Windows 2000
- Connecting with Windows 95/98
- Setting up HyperTerminal

Required information

Before you start, determine the access point name (APN) of your network.

Connecting with Windows 2000



Note: You must use Windows 2000 SP3 or later.

To connect the radio modem to your computer, you must perform the following tasks:

- add the modem
- add a dial-up connection
- edit registry settings

Add a modem

- 1. On the **Start** menu, select **Settings > Control Panel**. The Control Panel window appears.
- 2. Double-click the **Phone and Modem Options** icon. The Phone and Modem Options window appears.
- 3. Click the Modems tab, as shown in the following diagram.



Modem Options window – Modems tab

4. Click Add. The Add/Remove Hardware Wizard appears.

Connecting with Windows 2000

5. Select the **Don't detect my modem** option. Click **Next**. The model selection window appears, as shown in the following diagram.



Install New Modem window - model selection

6. In the Models list, select **Standard 33600 bps modem**. You do not need to choose a manufacturer. Click **Next**. The port selection window appears, as shown in the following diagram.

Add/Remove Hardware Wi	zard	
Install New Modem Select the port(s) you w	vant to install the modern on.	
	You have selected the following modem: Standard 33600 bps Modem On which ports do you want to install it? C All ports C Selected ports COM2	
	Keack Next> Ca	ancel

Install New Modem – port selection

7. Select the **Selected ports** option and click the COM port to which the radio modem is connected. Click **Next**.

A window appears that indicates that your modem has been installed successfully.

8. Click Finish. The Phone and Modem Options window appears.

9. On the **Modems** tab, select the modem that you added and click **Properties**. The Properties window appears.

Standard 28800 bps Modem Properties	?×
General Diagnostics Advanced	
Port: COM2	
<u>Speaker volume</u>	- 1
Low High	
Maximum Port Speed	
38400	
Dial Control	
☐ <u>W</u> ait for dial tone before dialing	

Modem Properties window - General tab

- 10. On the General tab, from the Maximum Port Speed drop-down list, select 115200.
- 11. Click the **Advanced** tab.

Standard 28800 bps Modem Properties	×
General Diagnostics Advanced	
Extra Settings	
E <u>s</u> tra initialization commands:	
Change Default Preferences	
OK Cancel	

Modem Properties window - Advanced tab

Connecting with Windows 2000

12. In the Extra initialization commands field, type:

at+cgdcont=1,"IP","apn_name"

where apn_name is the access point name (APN) for your network



Note: If you do not have Windows 2000 SP3 installed, the **Extra initialization command** field has a limit of 40 characters. If your APN name results in an entry that is longer than 40 characters, install SP3. In Internet Explorer, on the **Tools** menu, click **Windows Update**.

- 13. Click OK. The Phone and Modem Options window appears.
- 14. Click OK.

Add a connection

- 1. On the **Start** menu, select **Settings > Network and Dial-up Connections**. The Network and Dial-up Connections window appears.
- 2. Double-click the Make New Connection icon. The Network Connection Wizard appears.
- 3. Click Next.
- 4. Select the Dial-up to the Internet option. Click Next. The Internet Connection Wizard appears.
- 5. Select the **I want to set up my Internet connection manually** option. Click **Next**. The Setting up your Internet connection window appears.
- 6. Select the I connect through a phone line and a modem option. Click Next.

If you have more than one modem, the Choose Modem window appears. Select the modem that you added earlier. Click **Next**.

The Step 1 of 3 window appears.

- 7. Clear the Use area code and dialing rules option.
- 8. In the Telephone number field, type *99#. Click Next. The Step 2 of 3 window appears.
- 9. Leave the **User name** and **Password** fields blank. Click **Next**. Two dialog boxes appear to confirm that you have not set a user name and password.
- 10. In each dialog box, click Yes. The Step 3 of 3 window appears.
- 11. In the **Connection name** field, type a descriptive name for the new connection. Click **Next**. The Set Up Your Internet Mail Account window appears.
- 12. Select No. Click Next. The Completing the Internet Connection Wizard window appears.

13. Click Finish. The new connection appears in the Network and Dial-up Connections window.

Note: If you do not have Windows 2000 SP3 installed, clear the **To connect to the Internet immediately** option.

- 14. Right-click the new connection icon and click Properties. The Properties window appears.
- 15. Click the Networking tab, as shown in the following diagram.

RIM 1902G Radio Modem Properties	? ×	
General Options Security Networking Sharing		
Type of dial-up server I am calling:		
PPP: Windows 95/98/NT4/2000, Internet	•	
Setting	35	
Components checked are used by this connection:		
Themet Protocol (TCP/IP) Be and Printer Sharing for Microsoft Networks Be Client for Microsoft Networks		
Install Uninstall Properties		
Description Transmission Control Protocol/Internet Protocol. The default wides area network protocol that provides communication across diverse interconnected networks.		
OK Ca	incel	

Dial-up Properties window - Networking tab

16. Click **Internet Protocol (TCP/IP)** and click **Properties**. The Internet Protocol (TCP/IP) Properties window appears, as shown in the following diagram.

Internet Protocol (TCP/IP) Properti	ies	?×	
General			
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.			
Obtain an IP address automatica	ally		
⊂O Use the following IP address: —			
[P address:			
Obtain DNS server address auto Use the following DNS server ac Preferred DNS server: Alternate DNS server:	matically ddresses:		
	Advanced	i	
	OK Ca	incel	

Internet Protocol (TCP/IP) Properties window

17. Select the **Obtain DNS server address automatically** option.

Connecting with Windows 2000

- 18. Click OK. The Properties window appears.
- 19. Click the General tab and click Configure. The Modem Configuration window appears.
- 20. From the Maximum speed (bps) drop-down menu, select 115200.
- 21. Select the following options: **Enable hardware flow control**, **Enable modem error control**, and **Enable modem compression**.

Modem Configuration	<u>?</u> ×
LT Win Modem #2 (C	OM4)
Maximum speed (bps):	115200 💌
Modem protocol	
Hardware features	
Enable hardware flow co	ntrol
Enable modern error cont	rol
Enable modern compress	ion
- Initialization	
Show terminal window	
Run script:	v
	Edit Browse
🔲 Enable modem speaker	
	OK Cancel

Modem Configuration window

22. Click OK.

23. Click OK.

Change registry settings

Perform the following steps so that the modem disconnects and reconnects correctly.

1. In a command prompt, type:

regedit

The Registry Editor appears.

2. Click the following key:

```
HKEY_LOCAL_MACHINE > SYSTEM > CurrentControlSet > Control > Class >
{4D36E96D-E325-11CE-BFC1-08002BE10318} > xxxx > Hangup
```

where *xxxx* is the 4-digit number that corresponds to the standard 33600 bps modem that is used to communicate with the RIM OEM Radio Modem.



Tip: To determine which 4-digit number to use, click the 4-digit key (such as 0001) and view the Model string. The value data of the Model string should be Standard 33600 bps Modem.

The following diagram shows the Registry Editor window with the Hangup key selected.



Registry Editor with the Hangup key selected

- 3. Double-click on the **1** value.
- 4. In the Value data field, type: +++
- 5. Click OK.
- 6. On the **Edit** menu, click **New > String Value**. A new entry appears under the **Name** column in the Registry Editor window.
- 7. Type **2** for the name.
- 8. Double-click on the 2 value that you just added. The Edit String window appears.
- 9. In the **Value data** field, type:

ATH<cr>

10. Click OK. The Registry Editor window appears as shown in the diagram below.



Registry Editor with new value added for Hangup key

- 11. Click OK.
- 12. Close the Registry Editor window.
- 13. Restart your computer for registry settings to take effect.
- The RIM OEM Radio Modem connection is complete.

Connecting with Windows 95/98

You must perform the following tasks to connect the radio modem to your computer:

- add the modem
- add a dial-up connection

Add a modem

- 1. From the Start menu, click Settings > Control Panel. The Control Panel window appears.
- 2. Double-click the **Modems** icon. The Modem Properties window appears, as shown in the following diagram.

Modems Properties	? ×	
General Diagnostics		
The following modems are set up	on this computer:	
3Com Megahertz 10-100 LAN + 56K M	odem PC Card (Mo	
(<u>Add</u>) R <u>e</u> move	P <u>r</u> operties	
Dialing Preferences Dialing from: OEM		
Use Dialing Properties to modify how your calls are dialed		
<u>D</u> ialing Properties		
Close	Cancel	

Modems Properties window

- 3. Click Add.
- 4. Select the Other option. Click Next.
- 5. Select the Don't detect my modem option. Click Next.
- 6. In the **Models** list, select **Standard 28800 bps Modem**. You do not need to select a manufacturer. Click **Next**.
- 7. Select the COM port to which you connected the radio modem. Click Next.
- 8. Click Finish.

Connecting with Windows 95/98

Add a connection

- 1. On the Start menu, click Programs > Accessories > Communications > Dial-Up Networking.
- 2. Double-click the Make New Connection icon.
- 3. Type a descriptive name for the connection.
- 4. Select the Standard 28800 Modem that you installed.
- 5. Click **Configure**. The Properties window appears, as shown in the following diagram.

Standard 28800 bps Modem Properties	? ×
General Connection Options	
Standard 28800 bps Modem	
Port: Communications Port (COM1)	
Speaker volume	
Low High	
Maximum speed	
115200	
Only connect at this speed	
OK Cano	el

Modem Properties window – General tab

- 6. On the **General** tab, from the **Port** drop-down list, select the COM port to which the modem is connected.
- 7. From the Maximum speed drop-down list, select 115200.
- 8. Click the **Connection** tab.

Standard 28800 bps Modem Properties ? 🗙
General Connection Options
Connection preferences
Data bits: 8
Parity: None
Stop bits:
Call preferences
☐ Wait for dial tone before dialing
<u>Cancel the call if not connected within</u> secs
Djsconnect a call if idle for more than mins
Port Settings Advanced
OK Cancel

Modem Properties window - Connection tab

- 9. Set the fields to the following values:
 - From the **Data bits** drop-down list, select 8.
 - From the **Parity** drop-down list, select **None**.
 - From the **Stop bits** drop-down list, select **1**.
- 10. Click **Advanced**. The Advanced Connection Settings window appears, as shown in the following diagram.

Advanced Connection Settings	Ket I de flow control E Hardware (RTS/CTS) E Software (KIN/KOFF)
Modulation type	_
Record a log file	DK Cancel

Advanced Connection Settings window

11. In the Extra settings field, type:

at+cgdcont=1,"IP","apn_name"

where *apn_name* is the access point name (APN) for your network.

12. Click OK. The Modems Properties window appears.

Connecting with Windows 95/98

- 13. Click OK. The Make New Connection window appears.
- 14. Click Next.
- 15. In the Telephone number field, type *99#. Click Next.
- 16. Click Finish.

The new connection appears in the Network and Dial-up Connections window.

- 17. Right click on the connection icon that you created, and click **Properties**. The Properties window appears.
- 18. Clear the Use area code and Dialing Properties option.
- 19. Click the Server Types tab. Set the fields to the following values:
 - From the Type of Dial-Up Server pull-down list, select PPP.
 - Under Advanced options, select the Enable software compression option.
 - Under Allowed network protocols, select the TCP/IP option.
- 20. Click TCP/IP Settings. The TCP/IP Settings window appears.
- 21. Select the Server assigned IP address option.
- 22. Select the Server assigned name server addresses option.
- 23. Select the Use IP header compression and Use default gateway on remote network options.
- 24. Click OK. The Properties window appears.
- 25. Click OK.

The modem is now set up for dialup access.

Setting up HyperTerminal

You can use HyperTerminal to send AT commands to the OEM radio modem.

 On the Windows Start menu, click Programs > Accessories > Communications > HyperTerminal.

The Connection Description window appears.

2. Type a name and select an icon. Click OK.

The Connect To window appears.

3. From the **Connect using** drop-down menu, select the COM port to which the radio modem is connected. Click **OK**.

The Properties window appears.

- 4. Set the fields as follows:
 - Bits per second: 115200
 - Data bits: 8
 - Parity: None
 - Stop bits: 1
 - Flow control: Hardware

COM2 Properties	? ×
Port Settings	
	_
Bits per second: 115200	
Data bits: 8	
Parity: None	
Stop bits: 1	
Flow control: Hardware	
Restore Default	5
OK Cancel As	oply

HyperTerminal Connection Properties

5. Click **OK**. The modem is now ready to receive AT commands.



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